

AMENDMENTS TO THE CLAIMS

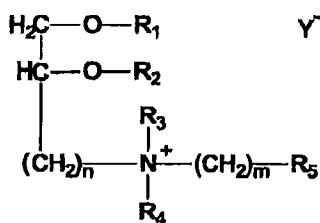
This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-67. (Canceled).

68. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

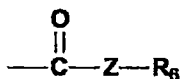
(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein R_1 and R_2 are identical and are selected from the group consisting of $\text{C}_{14}\text{H}_{29}$ and $\text{C}_{12}\text{H}_{25}$;

R_3 and R_4 are independently H; linear or branched, unsubstituted or substituted C_{1-23} alkyl, acyl, alkenyl, or $\text{C}_1\text{-C}_5$ heteroalkyl group having one heteroatom from 0 to 6 sites of unsaturation; or a cyclic or aryl group[[,]] ~~said heteroalkyl, cyclic, and aryl groups~~ comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said heteroalkyl, cyclic and aryl groups, wherein the substituent groups are selected from the group consisting of $-\text{O}-(\text{CH}_2)_k-\text{CH}_3$, $-\text{S}-(\text{CH}_2)_k-\text{CH}_3$, and $\text{X}-(\text{CH}_2)_k-$, wherein X is a halide, and k is 0 to 4;

R_5 has the structure



wherein Z is selected from the group consisting of O, S, NR₁, NH, and Se;

R₆ is selected from the group consisting of H, R₃, and R₄, and, when Z is O, NH, NR₁, or S, R₆ can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

wherein if Z is O, n is 1, and m is 3, then R₆ is selected from the group defined for R₃ and R₄; and

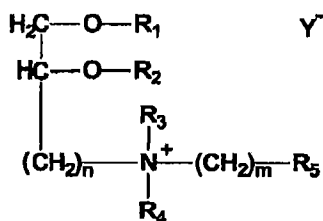
(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell.

69-70. (Canceled).

71. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



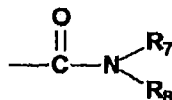
wherein

R₁ and R₂ are identical and are selected from the group consisting of C₁₄H₂₉ and C₁₂H₂₅;

R₃ and R₄ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or C₁-C₅ heteroalkyl group having one heteroatom from 0 to 6 sites of unsaturation; or a cyclic or aryl group[[,]] ~~said heteroalkyl, cyclic, and aryl groups comprising~~

from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said heteroalkyl, cyclic and aryl groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, -S-(CH₂)_k-CH₃, and X-(CH₂)_k-, wherein X is a halide, and k is 0 to 4;

R₅ has the structure:



R₇ and R₈ are independently selected from the group defined for R₃ and R₄ and one of R₇ and R₈ can further be an amino acid, peptide, polypeptide, protein, or mono-, di- or polysaccharide, wherein an amino nitrogen of said amino acid, peptide, polypeptide, protein, or mono-, di- or polysaccharide is the N to which R₇ or R₈ is attached;

n is 1 to 6;

m is 1 to 10; and

Y is a pharmaceutically acceptable anion; and

(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell.

72. (Canceled).

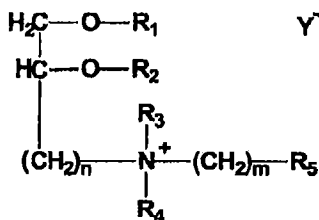
73. (Previously Presented) The method according to claim 71, wherein R₃ and R₄ are selected from the group consisting of C₁-C₅ alkyl groups and C₁-C₅ heteroalkyl groups having one heteroatom therein.

74. (Previously Presented) A method according to claim 73, wherein R₃ and R₄ are methyl groups.

75-84. (Canceled).

85. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

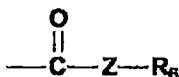
(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein R_1 and R_2 are independently H; linear or branched, unsubstituted or substituted C_{1-23} alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of $-\text{O}-(\text{CH}_2)_k-\text{CH}_3$, $-\text{S}-(\text{CH}_2)_k-\text{CH}_3$, and $\text{X}-(\text{CH}_2)_k-$, wherein X is a halide, and k is 0 to 4;

R_3 and R_4 are independently H; linear or branched, unsubstituted or substituted C_{1-23} alkyl, acyl, alkenyl, or C_1-C_5 heteroalkyl group having one heteroatom ~~from 0 to 6 sites of unsaturation~~; or a cyclic or aryl group ~~[[,]]~~ ~~said heteroalkyl, cyclic, and aryl groups~~ comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said heteroalkyl, cyclic and aryl groups, wherein the substituent groups are selected from the group consisting of $-\text{O}-(\text{CH}_2)_k-\text{CH}_3$, $-\text{S}-(\text{CH}_2)_k-\text{CH}_3$, and $\text{X}-(\text{CH}_2)_k-$, wherein X is a halide, and k is 0 to 4;

R_5 has the structure



wherein Z is selected from the group consisting of NR_1 , and NH ;

R_6 is selected from the group consisting of H, R_1 , R_2 , R_3 , and R_4 , and, R_6 can further be an amino acid, peptide, polypeptide, protein, or mono-, di- or polysaccharide, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, or mono-, di- or polysaccharide;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

- (b) contacting a cell with the lipid complex formed in step (a);
whereby a biologically effective amount of the anionic molecule is delivered into the cell.

86. (Previously Presented) A method of delivering an anionic molecule into a cell, comprising:

- (a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound, wherein said compound is selected from the group consisting of dioleoyl Rosenthal Inhibitor Ether (DORIE) carboxylate, dimyristyl Rosenthal Inhibitor Ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide; and

- (b) contacting a cell with the lipid complex formed in step (a);
whereby a biologically effective amount of the anionic molecule is delivered into the cell.

87. (Currently Amended) The method according to claim 71, wherein R_7 and R_8 are independently selected from the group defined for R_3 [[,]] and R_4 .

88-90. (Canceled).